2006 Report
Off-Center Evaluation Planting of Woody Plant Materials Becker, Minnesota

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INTRODUCTION

The Plant Materials Center (PMC), located at Bismarck, North Dakota, was established in 1954 as part of the U. S. Department of Agricultures' Soil Conservation Service, now the Natural Resources Conservation Service (NRCS). The Bismarck PMC serves the States of Minnesota, North Dakota, and South Dakota. Tree and shrub improvement has always been an integral part of the plant materials program in Minnesota. There is a need to evaluate how different trees and shrubs will perform in diverse soil and climatic conditions. The PMC currently has tree and shrub evaluation sites at eight locations in the three-state area, including three sites in Minnesota.

A long-term agreement, effective through August 9, 2010, has been developed with the University of Minnesota, Becker Research Farm, and the Anoka Sand Plain Association of Soil and Water Conservation Districts (SWCD). The Major Land Resource Area is 91, Wisconsin and Minnesota Sandy Outwash. Soils are a Hubbard-Mosford complex with leached coarse and medium sand outwash. Long-term average rainfall is 30.55 inches. The site is located on the north side of the Becker Research Farm, adjacent to the railroad tracks. A sign and kiosk identify the Anoka Sand Plain Plant Materials Evaluation and Demonstration Project. The first trees and shrubs were planted in 1996. The site was maintained with cultivation until 2003 when a 50/50 mix of Bad River blue grama and Pierre sideoats grama was seeded between the rows of Block I (Shrubs) and Block II (Medium Tall Trees). New entries planted each year are flagged and hand watered. Weed control is accomplished by cultivation between rows, and hand hoeing with-in rows. The seeded area is mowed. Wire cages are installed on entries with potential for deer and rabbit browsing. Measurements and notes are taken at the end of each growing season.

OBJECTIVES

1. Assemble and evaluate the adaptation and performance of selected woody plant material for field and farmstead windbreaks, wildlife habitat, and streambank and lakeshore plantings in the Northern Great Plains.
2. Select and cooperatively release superior woody conservation plants for increase by commercial nurseries.

ACTIVITIES IN 2006

Approximately 100 accessions of 80 different species are currently being evaluated. Five plants each of five new entries were planted on May 4, 2006, and included swamp white oak *(Quercus bicolor),* staghorn sumac *(Rhus typhina),* American chestnut *(Castanea dentata),* northern catalpa *(Catalpa speciosa),* and 'Prairie Red' hybrid plum *(Prunus* sp.*).* All plants were bareroot seedlings except for the American chestnut which were in small pots. One tree was replaced (potted replant) for the 9082885 quaking aspen *(Populus tremuloides).*

Weed control and plot maintenance has always been very good. The short stature blue grama/sideoats grama cover between the tree rows in Blocks I and II is mowed occasionally during the growing season. Removal and pruning of natural die-back of some species (primarily shrubs), and cutting and removal of contaminant species and poor performing entries is done on a routine basis. Entries removed in 2005 because of poor performance included skunkbush sumac (I-7), Siberian peach (IA-6), elderberry (IA-6), and speckled alder (II-4). Entries removed in 2006 included sugar maple (II-9) and white poplar (II-8). It was noted that all three silver buffaloberry accessions were dying and will be scheduled for removal.

Information was collected on selected entries on August 14, 2006. Measurements and notes were taken on crown spread and plant height; disease and insect damage; drought and cold tolerance; fruit production; survival; vigor; and animal damage. All of the new entries were off to a good start with average vigor ratings of good or better, except for the American chestnut which were rated poor for vigor. The swamp white oak had been browsed. Thirty-one accessions/entries were evaluated in 2006.

Data is summarized annually and documented in the Bismarck PMC Technical Report. Anyone who desires a copy of the latest data summary information can contact me at (701) 530-2075, or at Dwight.Tober@nd.usda.gov. The report is about 25 pages in length. The latest report has been printed for 2004-2005.

NEW RELEASES

Data collected from this site was used to support the formal release of two new shrubs in 2005 cooperatively with the Minnesota Agricultural Experiment Station. 'Silver Sands' sandbar willow and 'Survivor' false indigo were planted in 1996. They both had 100 percent survival (with replacements) and good to excellent vigor and overall plant performance ratings. Rabbits did browse the sandbar willow quite extensively the first two years. Both species are subject to natural die-back due to winter or drought conditions. A release brochure was completed in 2006 and is available on the Bismarck PMC homepage (http://Plant-Materials.nrcs.usda.gov) for these two new releases, or it can be ordered from the Bismarck PMC. 'Prairie Red' hybrid plum was released as a formal cultivar in 2006. It is known for a high percentage of large, sweet fruit and less suckering than the American plum. It was planted at the Becker site in 2006. 'Prairie Red' was also cooperatively released with the Minnesota Agricultural Experiment Station.

Conifer block at the Becker Off-Center Evaluation Planting

SUMMARY OF ACCOMPLISHMENTS

Selected accessions/cultivars that have performed well at the Becker site and show promise for additional testing and/or promotion for conservation use include the following:

9019586 green ash	**'Oahe' hackberry**
'Centennial' cotoneaster	**'Scarlet' Mongolian cherry**
'McDermand' Ussurian pear	**'Freedom' honeysuckle**
'Indigo' silky dogwood	**9082632 Mongolian peashrub**
9082891 common ninebark	**9082712 bittersweet**
'Silver Sands' sandbar willow	**9082687 American black currant**
Schubert chokeberry	**'Survivor' false indigo**
9069162 Dahurian larch	**9069129 Amur chokecherry**
ND-170 cotoneaster	**9082667 gray birch**
9076725 smooth bark elm	**323957 chokeberry**
9069178 red pine	**'Midwest' Manchurian crabapple**
9076730 silver maple	**9082631 Japanese birch**
9063148 corktree	**9076729 gray dogwood**
9076737 black cherry	**'Arnold's Red' honeysuckle**
9057406 rugosa rose	**9069172 Scotch pine**
9019605 sand cherry	**9076722 European white birch**

Data from this planting has been used to document the cooperative release of the cultivars listed below. These cultivars are generally available from local conservation nurseries and are used in conservation plantings throughout the Northern Great Plains and Upper Midwest. Several more releases are anticipated in the near future. Information gathered concerning plant performance assists cooperating nurseryman and plant researchers in determining the range of adaptation of many other accessions/cultivars also included in the test planting.

Formal Releases with Supporting Documentation from the Becker Site

'Legacy' late lilac	**1999**
'Silver Sands' sandbar willow	**2005**
'Survivor' false indigo	**2005**

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